LPDES PERMIT NO. LA0002925, AI No. 1060

LPDES FACTSHEET
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA

I. COMPANY/FACILITY NAME: Southwestern Electric Power Company
Arsenal Hill Power Plant
510 North Allen Ave.
Shreveport, LA 71101

II. ISSUING OFFICE: Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

III. PREPARED BY: Ronda Burtch/Lisa Kemp
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Permits Division

Date Prepared: March 24, 2009

Revised: May 15, 2009

IV. PERMIT ACTION/STATUS:

A. Reason for Permit Action:

Proposed re-issuance of a Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711.

LAC 33: IX Citations: Unless otherwise stated, citations to LAC 33: IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33: IX.4901, 4903, and 2301.F.

B. NPDES permit: NPDES permit effective date: October 1, 1990
NPDES permit expiration date: September 24, 1995
EPA has not retained enforcement authority.

C. LPDES permit: LPDES permit number: LA0002925
LPDES permit effective date: February 1, 2004
LPDES permit expiration date: January 31, 2009

LPDES permit number LAR05N077
LPDES permit effective date: May 24, 2006
LPDES permit expiration date: April 30, 2011

D. Application received on: May 9, 2008 and a revised application received on July 18, 2008; additional information received on March 6, 2009, March 13, 2009, May 14, 2009, and May 15, 2009.

V. FACILITY INFORMATION:

A. Location: 510 North Allen Ave., Shreveport, Caddo Parish, Louisiana

B. Applicant Activity:

Southwestern Electric Power Company (SWEPCO), Arsenal Hill Power Plant is an existing steam electric generating plant. The existing unit (Unit 5) at the plant will remain in service. It has a generating capacity of 110 MW. SWEPCO intends to build 2 new gas combustion units with a heat recovery steam turbine to produce an additional 480 MW. The total generating capacity of the Arsenal Hill plant will be 590 MW.

The original intake withdraws water from Cross Bayou to the cooling water pond when necessary for two once-through cooling systems. The cooling water pond also collects water from the city streets. During large storm events, the water in the pond may reach a sufficient level to force the facility to lower the pond to the operating level by discharging through a pipe to Outfall 001. Occasionally, the cooling water pond may be discharged to prevent the buildup of various constituents that would cause scaling in the system. The once-through units are non-contact and discharge back to the pond via a spray system designed to dissipate heat. The expansion will include construction of an additional intake structure and a new cooling tower. Water will not be drawn into the cooling pond from the new intake. The new intake will withdraw an additional volume of fresh water from Cross Bayou of up to 8.8 MGD, 99% of which will be used for cooling purposes for the new units. Cooling tower blowdown will discharge through Outfall 002 to the Red River.

At this time, the new units are expected to be operational by June 2010. The draft LPDES permit has been written to include Phase II operations.

Arsenal Hill sanitary wastewater is discharged to a municipal treatment facility. Stormwater not discharged to the cooling water pond is discharged by the facility under its multi-sector general permit LAR05N077.

C. Technology Basis - LAC 33:IX.4903

Guideline	Reference
Steam Electric Power Generating Point Source Category	40 CFR 423

Other sources of technology based limits
Best Professional Judgement

D. Fee Rate -
1. Fee Rating Facility Type: Major
2. Complexity Type: IV
3. Wastewater Type: III
4. SIC code: 4911

E. Estimated Facility Effluent Flow (Max 30-Day) – 2.34 MGD to Cross Bayou; 3.385 MGD to Red River

VI. RECEIVING WATERS:

Cross Bayou, Subsegment 100304

A. TSS (15%), mg/L: 10.3
B. Average Hardness, mg/L $CaCO_3$: 76.5
C. Critical Flow, cfs: 3.41
D. Mixing Zone Fraction: 1/3
E. River Basin: Red River, Segment No. 10
F. Designated Uses:

The designated uses of Subsegment 100304 are primary contact recreation, secondary contact recreation, fish and wildlife propagation, drinking water, and agriculture.

Stream data information in A – D for Subsegment 100304, based on the following: LAC 33: IX Chapter 11; Recommendation(s) from the Engineering Section. Hardness and 15% TSS data come from ambient monitoring station #270 on Cross Bayou at Shreveport, Louisiana. The critical flow (7Q10) for Cross Bayou was obtained from a USGS station located at Dixie, Louisiana (Site Identification # 07348000). After including the drainage area downstream of the USGS station, the site-specific critical flow was estimated.

Red River, Subsegment 100101

A. TSS (15%), mg/L: 24
B. Average Hardness, mg/L $CaCO_3$: 189
C. Critical Flow, cfs: 1275
D. Mixing Zone Fraction: 1/3
E. River Basin: Red River, Segment No. 10
F. Designated Uses:

The designated uses of Subsegment 100101 are primary contact recreation, secondary contact recreation, fish and wildlife propagation, drinking water, and agriculture.

Stream data information in A – D for Subsegment 100101, based on the following: LAC 33: IX Chapter 11; Recommendation(s) from the Engineering Section. Determinations of water quality characteristics for the Red River were taken from ambient monitoring station #120 on the Red River, north of Shreveport, Louisiana. According to the "Low-Flow on Streams in Louisiana" prepared for the LDEQ, Office of Water Resources, Engineering Section 2, by Fred N. Lee, March 2000, the 7Q10 at this location has been determined to be 1,275 cfs (Station Number 7348500). The harmonic mean flow has been determined to be 9,009 cfs.

VII. OUTFALL INFORMATION:

PHASE I

Outfall 001

A. Type of wastewater: once-through cooling water, non-process area stormwater runoff, and previously monitored low volume wastewater

B. Location: at the point of discharge from the cooling pond located on the north side of the facility prior to mixing with any other waters (Latitude 32° 31' 13", Longitude 93° 45' 50")

C. Treatment: settling, aeration, and evaporation

D. Flow: intermittent – 2.34 MGD

E. Receiving waters: Twelve Mile/Cross Bayou

F. Basin and segment: Red River Basin, Subsegment 100304

Internal Outfall 101

A. Type of wastewater: low volume wastewater (including but not limited to boiler blowdown and floor drains) from Unit 5

B. Location: at the point of discharge from the wastewater collection sump located inside the old main plant building prior to mixing with any other waters (Latitude 32° 31' 11", Longitude 93° 45' 49")

C. Treatment: pH adjustment, settling, oil/water separator

D. Flow: intermittent – 1.28 MGD

E. Receiving waters: Twelve Mile/Cross Bayou via Outfall 001

F. Basin and segment: Red River Basin, Subsegment 100304

PHASE II

Outfall 001 and Internal Outfall 101

No changes. See Phase I description above.

Outfall 002

A. Type of wastewater: cooling tower blowdown and previously monitored low volume wastewater

B. Location: at the point of discharge from the cooling tower to the piping that routes the cooling tower effluent to the Red River, prior to mixing with other waters (Latitude 32° 31' 6", Longitude 93° 44' 47")

C. Treatment: pH adjustment, de-chlorination, and settling

D. Flow: continuous – 3.385 MGD (est.)

E. Receiving waters: Red River at the confluence of Cross Bayou/Twelve Mile Bayou

F. Basin and segment: Red River Basin, Subsegment 100101

Internal Outfall 102

A. Type of wastewater: miscellaneous low volume wastewater from the new units (including but not limited to water treatment wastewaters and floor drains)

B. Location: Internal Outfall 102, at the point of discharge from the oil/water separator (or other low volume waste sources) to the cooling tower, prior to mixing with any other waters (Latitude 32°31'15", Longitude 93°45'42")

C. Treatment: settling and oil/water separator

D. Flow: intermittent – 0.124 MGD (est.)

E. Receiving waters: Red River via Outfall 002

F. Basin and segment: Red River Basin, Subsegment 100101

III. PREVIOUS EFFLUENT LIMITATIONS

Outfall 001 – intermittent discharge of cooling pond water

PARAMETER	LPDES PERMIT LIMITATIONS				
	Monthly Average (lb/day)	Daily Maximum (lb/day)	Monthly Average (mg/l)	Daily Maximum (mg/l)	Measurement Frequency
Flow (MGD)	Report	Report	---	---	1/day
Temperature (°F)	---	---	---	90	1/day
Free Available Chlorine	---	---	---	0.2	1/day
pH (s.u.)	---	---	6.0 min	9.0 max	1/day

Outfall 101 – intermittent discharge of low volume wastewater

PARAMETER	LPDES PERMIT LIMITATIONS				
	Monthly Average (lb/d)	Daily Maximum (lb/d)	Monthly Average (mg/l)	Daily Maximum (mg/l)	Measurement Frequency
Flow (MGD)	Report	Report	---	---	1/day
TSS	---	---	30	100	1/month
Oil and Grease	---	---	15	20	1/month

IX. PROPOSED PERMIT LIMITS:

The specific effluent limitations and/or conditions will be found in the draft permit. Development and calculation of permit limits are detailed in the Permit Limit Rationale section below.

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. CHANGES FROM PREVIOUS PERMIT

1. This permit adds two new outfalls, 002 and 102.
2. Biomonitoring requirements are added to Outfall 001 based on the new major status of the facility.
3. The Free Available Chlorine requirement for Outfall 001 has changed to a Total Residual Chlorine (TRC) limitation.
4. The description for Outfall 001 has been changed from "the intermittent discharge of cooling pond water" to "the intermittent discharge of once-through cooling water, non-process area stormwater runoff, and previously monitored low volume wastewater" based on the application.
5. Monitoring for pH has been moved from Outfall 001 to Outfall 101. Typically, pH is monitored at the final outfall. However, 40 CFR 423.12(b) (1) states, "The pH of all discharges, except once-through cooling water, shall be within the range of 6.0-9.0." Low volume waste discharges are monitored separately at Outfall 101. Therefore, pH will be monitored at Outfall 101. The monitoring frequency has been changed from 1/day to 1/week based on similar outfalls.
6. Monitoring frequency is being increased from 1/month to 1/week for Outfall 101 based on the new major status of the facility.
7. Part II language regarding the immediate notification of any unauthorized discharge into any water used for potable water supply has been removed because the discharge does not flow into a surface drinking water protection area.
8. Language has been included in the permit reopener clause, Part II, Paragraph P, requiring collection of effluent data no later than two years after commencement of discharge from the new, proposed outfalls (Outfalls 002 and 102).
9. Part II, Paragraph T, Cooling Water Intake Structure Requirements, has been included in the draft permit.

B. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b, the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D, whichever are more stringent.

1. TECHNOLOGY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations promulgated at LAC 33:IX.2707.A require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines

where applicable, on BPJ (best professional judgement) in the absence of guidelines, or on a combination of the two. The following is a rationale for types of wastewaters. The permittee is subject to (Phase I) Best Practicable Control Technology Currently Available (BPT), Best Available Technology Economically Achievable (BAT), and (Phase II) New Source Performance Standards (NSPS) of the effluent limitation guidelines listed below:

Manufacturing Operation	Guideline
Steam Electric Power Generating Point Source Category	40 CFR 423

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715] and to assure compliance with permit limitations [LAC 33:IX.2707.I]. Specific monitoring frequencies per outfall are listed in Section C.

2. WATER QUALITY BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations were screened against state water quality numerical standard based limits by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards. Calculations, results, and documentation are presented in Appendix B.

The following pollutants received water quality based effluent limits:

None

C. OUTFALL SPECIFIC RATIONALES

Outfall 001

1. General Comments

The intermittent discharge of once-through cooling water, non-process area stormwater runoff, and previously monitored low volume wastewater (est. flow 2.34 MGD).

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency **	Sample Type
Flow-mgd	Report	Report	---	---	1/day	Estimate
Temperature (° F)	---	90	---	---	1/day	Grab
Total Residual Chlorine (TRC)	---	---	---	0.2 mg/l	1/day	Grab*
Chronic Biomonitoring	---	---	---	See below	1/quarter	24-hour composite

* Sample shall be representative of any periodic episodes of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

** When discharging.

Flow: The monthly average and daily maximum monitoring requirements, monitoring frequency, and sample type are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.I.1.b/40 CFR 122.44(I) (1) (ii).

Temperature – The daily maximum temperature limitation is retained from the current LPDES permit. It is also consistent with the numerical criteria for temperature listed in LAC 33:IX.1123.Table 3 for Subsegment 100304, Twelve Mile Bayou – from Headwaters to the Red River. The monitoring frequency and sample type are retained as well.

Total Residual Chlorine (TRC) - The current LPDES permit established a daily maximum limitation of 0.2 mg/l in accordance with 40 CFR 423.13(b) (1) and 423.13(g). This concentration limit is retained in the draft permit. However, the parameter was listed as Free Available Chlorine instead of Total Residual Chlorine. 40 CFR 423.13(b) (1) guidelines for once-through cooling water establish a daily maximum limitation of Total Residual Chlorine. Therefore, Total Residual Chlorine limits are included in this permit for Outfall 001. Mass loadings are not applied in accordance with 423.13(g). Monitoring frequency and sample type are retained from the current LPDES permit.

Biomonitoring Requirements – It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit for Outfall 001 are as follows:

TOXICITY TESTS	FREQUENCY
Chronic static renewal 7-day Larval survival and growth test using Fathead minnow (Pimephales promelas) [Method 1000.0, EPA-821-R-02-013]	once per quarter
Chronic static renewal 7-day survival and reproduction test using (Ceriodaphnia dubia) [Method 1002.0, EPA-821-R-02-013]	once per quarter

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, EPA/600/4-89/001, March 1989." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency

has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and salinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first full report to the Office of Environmental Compliance. However, the full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.3105. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

Dilution Series

The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 22%, 29%, 39%, 51%, and 69%. The critical biomonitoring dilution is defined as 51% effluent.

Outfall 002

1. General Comments Phase II Permit Limits

The continuous discharge of cooling tower blowdown and previously monitored low volume wastewater (102) [Phase II limits beginning on the commencement of Phase II operations to the expiration date of the permit]. Estimated flow 3.385 MGD

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency **	Sample Type
Flow (MGD)	Report	Report	---	---	Continuous	Measure
Temperature (° F)	Report	114	---	---	Continuous	Measure
Free Available Chlorine (FAC)	5.65 lb/day	14.12 lb/day	0.2 mg/L	0.5 mg/L	1/week	Grab*
Total Chromium	5.65 lb/day	5.65 lb/day	0.2 mg/L	0.2 mg/L	1/year	Grab
Total Zinc	28.2 lb/day	28.2 lb/day	1.0 mg/L	1.0 mg/L	1/month	Grab
Sulfates	---	---	Report (mg/L)	Report (mg/L)	1/month	Grab
pH (s.u.)	---	---	6.0 min.	9.0 max.	1/week	Grab
Acute biomonitoring	---	---	---	See below	1/quarter	24-hr. composite

* Sample shall be representative of any periodic episodes of chlorination, biocide usage, or other potentially toxic substance discharged on an intermittent basis.

** When discharging.

Flow: This permit will establish monthly average and daily maximum flow monitoring requirements, measurement frequency, and sample type consistent with LAC 33:IX.2707.I.1.b.

Temperature: This permit establishes monthly average reporting and a daily maximum temperature limitation of 114° F in accordance with other similarly permitted facilities. Monitoring frequency and sample type are established based on BPJ and similar permitted outfalls.

Free Available Chlorine (FAC): This permit will establish a monthly average limitation of 0.2 mg/l and a daily maximum limitation of 0.5 mg/l in accordance with 40 CFR 423.15(j) (1) and 423.15(m). In accordance with 40 CFR 122.45(f), mass limitations are applied. Mass loadings are calculated based on the estimated flow of 3.385 MGD.

Monitoring frequency and sample type are established based on BPJ and similar permitted outfalls.

Note: In an email dated March 6, 2009, American Electric Power (AEP) stated that they do not intend to use any water treatment chemicals/additives that would contribute priority pollutants to the cooling tower blowdown discharge. AEP requested relief from effluent limitations and monitoring requirements for priority pollutants (specifically for zinc and chromium). It was noted that the facility will utilize sulfuric acid as a means of controlling pH on an as-needed basis, and this product may contain trace amounts of zinc and chromium. AEP contends that the use of this product will not result in the contribution of zinc and/or chromium in measurable amounts to the discharges of cooling tower blowdown.

LAC 33:IX.2707.A requires that technology-based effluent limitations be placed in LPDES permits based on effluent limitations guidelines where applicable (see Section IX.B.1 of this factsheet). In accordance with 40 CFR 423.15 (j), there shall be no discharge of any 126 priority pollutants associated with the chemicals added for cooling tower maintenance, except total chromium and total zinc. Zinc and chromium parameters are included in the permit as required by effluent guidelines established in 40 CFR 423.15 (j) (1). The monitoring frequencies for zinc and chromium are consistent with current LDEQ practices for permitting cooling tower blowdown from electric power generating plants.

Total Chromium: This permit will establish a monthly average limitation of 0.2 mg/l and a daily maximum limitation of 0.2 mg/l in accordance with 40 CFR 423.15(j) (1). In accordance with 40 CFR 122.45(f), mass limitations are applied. Mass loadings are established based on the estimated flow of 3.385 MGD. The monitoring frequency is consistent with current LDEQ practices for permitting cooling tower blowdown from electric power generating plants.

Total Zinc: This permit will establish a monthly average limitation of 1.0 mg/l and a daily maximum limitation of 1.0 mg/l in accordance with 40 CFR 423.15(j) (1). In accordance with 40 CFR 122.45(f), mass limitations are applied. Mass loadings are established based on the estimated flow of 3.385 MGD. The monitoring frequency is consistent with current LDEQ practices for permitting cooling tower blowdown from electric power generating plants.

Sulfates: This permit will establish sulfate reporting requirements based on the sulfate impairment for this subsegment and BPJ. Monitoring frequency and sample type are established based on BPJ.

pH: This permit will establish instantaneous minimum and maximum pH requirements. These limits are based on 40 CFR 423.15(a).

Biomonitoring Requirements: It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit for Outfall 002 are as follows:

TOXICITY TESTS	**FREQUENCY**
Acute static renewal 48-hour definitive toxicity test using Daphnia pulex	once per quarter
Acute static renewal 48-hour definitive toxicity test using Pimephales promelas (Fathead minnow)	once per quarter

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and salinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first full report to the Office of Environmental Compliance. However, the full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data shows actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.3105. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

Dilution Series - The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 5%, 7 %, 9%, 12%, and 16% concentrations, with the 12% effluent concentration being defined as the critical biomonitoring dilution (the 10:1 Acute-to-Chronic ratio has been implemented).

Internal Outfalls

In accordance with LAC 33:IX.3305, the following is an explanation for the establishment of Internal Outfalls 101 and 102. Certain permit effluent limitations at the point of discharge are impractical because at the final discharge points the wastewater is diluted as to make monitoring impracticable. Therefore, in accordance with LAC 33:IX.2709, the internal outfalls described below will either remain or be included in the permit.

Internal Outfall 101

1. General Comments

The discharge of miscellaneous low volume wastewater (including but not limited to boiler blowdown and floor drains) from Unit 5.

2. Effluent Limitations and Monitoring Frequencies

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency **	Sample Type
Flow (MGD)	Report	Report	---	---	1/day	Estimate
TSS (*1), (*2)	---	---	30 mg/L	100 mg/L	1/week	Grab
Oil and Grease (*1)	---	---	15 mg/L	20 mg/L	1/week	Grab
pH (s.u.)	---	---	6.0 (min)	9.0 (max)	1/week	Grab

(*1) Since more than one source is associated with this particular waste category, individual samples from each source may be composited physically or arithmetically into a single flow weighted sample for analysis and reporting.

(*2) TSS limits will be reported as the difference between the TSS concentration at the low volume wastewater discharge and the concentration of the intake water as measured at the intake of the low volume wastewater system.

Flow: The monthly average and daily maximum flow reporting requirements are retained from the current LPDES permit. The monitoring frequency and sample type are also retained. This requirement is consistent with LAC 33:IX.2707.I.1.b.

Total Suspended Solids (TSS): The current LPDES permit established a monthly average discharge limitation for TSS at 30 mg/l and a daily maximum discharge limitation at 100 mg/l which are retained in the draft permit. These limitations are based on 40 CFR 423.12(b) (3). TSS limits reflect net effluent limitations based on the previous permit because the intake water is comprised of runoff from surrounding properties. The sample type is retained from the current permit. The monitoring frequency has been increased from 1/ month to 1/week based on the new major status of the facility.

Oil & Grease: The current LPDES permit established a monthly average limitation of 15 mg/L and a daily maximum discharge limitation of 20 mg/l based on 40 CFR 423.12(b)(3). The sample type is being retained. The monitoring frequency has been increased from 1/ month to 1/week based on the new major status of the facility.

pH – The pH limitations are retained from the current LPDES permit. These limits are based on 40 CFR 423.12(b) (1). The pH parameter was moved from Outfall 001 to Outfall 101. Typically, pH is monitored at the final outfall. However, 40 CFR 423.12(b) (1) states, "The pH of all discharges, except once-through cooling water, shall be within the range of 6.0-9.0." Low volume waste discharges are monitored separately at Outfall 101. Therefore, pH will be monitored at Outfall 101. Monitoring frequency has been changed to 1/week based on similar outfalls.

40 CFR 423.11(b) defines "low volume waste sources" as wastewater that comes from several allowable sources, which are collectively limited as if they were one source. Therefore, footnote (*1) includes language regarding how these sources may be sampled and reported together.

Outfall 102

1. General Comments Phase II Permit Limits

The discharge of miscellaneous low volume wastewater from the new units (including but not limited to water treatment wastewaters and floor drains) [Phase II limits beginning on the commencement of Phase II operations to the expiration date of the permit].

2. Effluent Limitations and Monitoring Frequencies

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Monthly Avg.	Daily Max.	Measurement Frequency **	Sample Type
Flow (MGD)	Report	Report	---	---	1/day	Estimate
TSS (*1)	---	---	30 mg/L	100 mg/L	1/week	Grab
Oil and Grease (*1)	---	---	15 mg/L	20 mg/L	1/week	Grab

(*1) Since more than one source is associated with this particular waste category, individual samples from each source may be composited physically or arithmetically into a single flow weighted sample for analysis and reporting.

Flow: This requirement is consistent with LAC 33:IX.2707.I.1.b. The monitoring frequency and sample type are based on BPJ and similar Outfall 101.

Total Suspended Solids (TSS): This permit will establish a monthly average discharge limitation for TSS at 30 mg/l and a daily maximum discharge limitation at 100 mg/l. These limitations are based on 40 CFR 423.15(c). The monitoring frequency and sample type are based on BPJ and similar Outfall 101.

Oil & Grease: This permit will establish a monthly average limitation of 15 mg/L and a daily maximum discharge limitation of 20 mg/l based on 40 CFR 423.15(c). The monitoring frequency and sample type are based on BPJ and similar Outfall 101.

40 CFR 423.11(b) defines "low volume waste sources" as wastewater that comes from several allowable sources, which are collectively limited as if they were one source. Therefore, footnote (*1) includes language regarding how these sources may be sampled and reported together.

PART II SPECIFIC CONDITIONS

PROHIBITION OF PCB DISCHARGES

As commanded by 40 CFR 423.12(b) (2), a Part II condition is proposed in this draft permit prohibiting the discharge of polychlorinated biphenyl compounds.

"There shall be no discharge of polychlorinated biphenyls (PCB's). The minimum quantification level for PCB's is 1.0 μg/l. If any individual analytical test result for PCB's is less than the minimum quantification level, then a value of zero (0) shall be used for the Discharge Monitoring Report (DMR) calculations and reporting requirements."

PROHIBITION OF 126 PRIORITY POLLUTANTS

There shall be no discharge of any 126 priority pollutants (40 CFR 423 Appendix A) associated with the chemicals added for cooling tower maintenance, except total chromium and total zinc.

LOW VOLUME WASTE SOURCES

The term "low volume waste sources" means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established. Low volume waste sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment systems, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastewaters are not included.

TOTAL RESIDUAL CHLORINE

The term "total residual chlorine" (or total residual oxidants for intake water with bromides) means the value obtained using the amperometric method for total residual chlorine described in

Total residual chlorine may not be discharged from any unit for more than two hours per day.

Simultaneous multi-unit chlorination is permitted.

FREE AVAILABLE CHLORINE

The term *free available chlorine* shall mean the value obtained using the amperometric titration method for free available chlorine described in the latest edition of Standard Methods for the Examination of Water and Wastewater.

Free available chlorine may not be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available chlorine at any one time.

TEMPERATURE

Daily temperature discharge is defined as the flow-weighted average (FWAT) and, on a daily basis, shall be monitored and recorded in accordance with Part I of this permit. FWAT shall be calculated at equal time intervals not greater than two hours. The method of calculating FWAT is as follows:

$$\text{FWAT} = \frac{\text{Summation (Instantaneous Flow X Instantaneous Temperature)}}{\text{Summation (Instantaneous Flow)}}$$

"Daily average temperature" (also known as monthly average) shall be the arithmetic average of all FWATs calculated during the calendar month. "Daily maximum temperature" (also known as the daily maximum value) shall be the highest FWAT calculated during the calendar month.

X. Compliance History/DMR Review:

A) Inspections

Date: January 26, 2007
Inspector: LDEQ
Findings and/or Violations:

A routine compliance inspection found the facility was satisfactory.

B) Compliance and/or Administrative Orders

A review of the file for the period of January 1, 2007 to December 31, 2008, reveals no enforcement actions administered against this facility.

C) DMR Review

A review of the discharge monitoring reports for the period beginning January 1, 2007 through December 31, 2008 found all DMRs to be in order and no exceedances of the existing permit limits.

XI. WATER QUALITY CONSIDERATIONS

Outfall 001

Subsegment 100304, Red River – Twelve Mile Bayou-Origin to Red River (on the map, Twelve Mile Bayou and Cross Bayou run together at plant discharge point, so that either waterbody would be correct), is listed on LDEQ's Final 2006 303(d) List as impaired for dissolved oxygen/low DO (EPA-Category 5). To date no TMDLs have been completed for this waterbody. A reopener clause will be established in the permit to allow for the requirement of more stringent effluent limitations and requirements as imposed by a TMDL. Until completion of TMDLs for the Red River Basin, those suspected causes for impairment which are not directly attributed to the steam electric generating point source category have been eliminated in the formulation of effluent limitations and other requirements of this permit. Additionally, suspected causes of impairment which could be attributed to pollutants which were not determined to be discharged at a level which would cause, have the reasonable potential to cause or contribute to an excursion above any present state water quality standard were also eliminated. This facility is not expected to cause or contribute to the dissolved oxygen/low DO impairment of this subsegment. Therefore, no limitations for dissolved oxygen are being placed in the permit.

Outfall 002

Subsegment 100101, Red River Arkansas State Line to Alexandria Hwy (Hwy 165), is listed on LDEQ's Final 2006 303(d) List as impaired for sulfates and color. To date no TMDLs have been completed for this waterbody. A reopener clause will be established in the permit to allow for the requirement of more stringent effluent limitations and requirements as imposed by a TMDL. Until completion of TMDLs for the Red River Basin, those suspected causes for impairment which are not directly attributed to the steam electric generating point source category have been eliminated in the formulation of effluent limitations and other requirements of this permit. Additionally, suspected causes of impairment which could be attributed to pollutants which were not determined to be discharged at a level which would cause, have the reasonable potential to cause or contribute to an excursion above any present state water quality standard were also eliminated. This discharge is not expected to cause or contribute to the color impairment. Sulfates reporting requirements are include in this permit to provide data for future TMDL development.

Both outfalls are located downstream of existing drinking water intake structures.

XII. ENDANGERED SPECIES

The receiving waterbody, Subsegment 100304 of the Red River Basin is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated November 17, 2008 from Rieck (FWS) to Nolan (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section 7, Endangered Species Act) consultation is required. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. Therefore, the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat.

The receiving waterbody, Subsegment 100101 of the Red River Basin is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated November 17, 2008 from Rieck (FWS) to Nolan (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no

further informal (Section 7, Endangered Species Act) consultation is required. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. Therefore, the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat.

XIII. HISTORIC SITES:

The discharge will be from a proposed facility (expansion). LDEQ has consulted with the State Historic Preservation Officer (SHPO) in a letter dated June 3, 2008 to determine whether construction-related activities could potentially affect sites or properties on or eligible for listing on the National Register of Historic Places. SHPO's response letter, dated July 2, 2008, stated that the facility as proposed will have no potential effects.

XIV. 316b REQUIREMENTS:

Arsenal Hill Power Plant (Unit 5) became operational in 1960; the original power plant was built in the late 1920's. The 316b Phase I definition for *New facility* states "New facility does not include new units that are added to a facility for purposes of the same general industrial operation." Therefore, Arsenal Hill Power Plant is considered an existing facility. The expansion will withdraw an additional 8.8 MGD, which is well below the threshold of 50 MGD for facilities subject to categorical Phase II section 316(b) requirements.

The existing facility was issued a number of previous NPDES and/or LPDES permits and has been withdrawing non-contact cooling water without any identified problems since 1960. LDEQ has no information which either identifies or verifies any past or current adverse environmental impacts associated with the withdrawal of the applicable cooling water. The facility currently recirculates cooling water through a cooling water pond. The original intake withdraws water from Cross Bayou to the cooling water pond when necessary to maintain the level of the pond. The expansion will include an additional intake structure and a cooling tower. Since the current facility and the expansion utilize recirculating systems to cool the generating units, LDEQ has made the determination that these cooling water intake systems represent the best technology available (BTA). This determination is based on current information available and will be re-evaluated upon promulgation of revised 316b Phase II regulations. If it is later determined that the cooling water intake systems for this facility do not represent BTA for minimizing adverse environmental impacts, the permit may be reopened to incorporate additional requirements.

XV. IT QUESTIONS – APPLICANT RESPONSES

The applicant's IT responses are included in Appendix C.

XVI. TENTATIVE DETERMINATION:

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to reissue a permit for the discharge described in the application.

XVII. PUBLIC NOTICES:

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the fact sheet. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List